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The Johns Hopkins Hospital Bulletin.

Volume I.—No. 1.] BALTIMORE, DECEMBER, 1889. [Price, 15 Cents.

MEDICAL INSTRUCTION IN THE JOHNS HOPKINS HOSPITAL.

During the year 1889–90, instruction will be given at the Johns Hopkins Hospital in Pathology and Bacteriology, Medicine, Surgery, Gynaecology, and Hygiene, by lectures, demonstrations, laboratory courses, bed-side teaching and general clinics in the laboratories, wards, dispensary, amphitheatre and private operating rooms.

1. PATHOLOGY AND BACTERIOLOGY.

Pathology.

The instruction in Pathology is under the charge of Dr. W. H. Welch, Professor of Pathology, Johns Hopkins University, and of Dr. W. T. Councilman, Associate in Pathology and Associate Professor of Anatomy, Johns Hopkins University. It is conducted in the Pathological Laboratory, which is one of the buildings of the Johns Hopkins Hospital, especially constructed for pathological work. Here are to be found an autopsy theatre, rooms for bacteriological and special research, rooms for pathological histology, experimental pathology and photography and a museum.

Courses of instruction in Pathological Histology are continued throughout the academic year. In connection with the course in Pathological Histology fresh pathological specimens are demonstrated and also studied microscopically, especially by the aid of frozen sections. Instruction is also given in the methods of making post-mortem examinations and of recording the same.

Much attention is given to the collection and study of material in Comparative Pathology.

The resources of the laboratory are open to those who are fitted to engage in special investigations in any department of pathology.

In addition to regular practical courses in the laboratory extending throughout the academic year, special courses of lectures on pathological subjects will be given during the months of January and February, 1890 Professor Welch at this time will lecture once a week upon the Pathology of Diseases of the Heart and Blood Vessels. The subjects of fatty heart, fibrous myocarditis, diseases of the coronary arteries of the heart, thrombosis, embolism, infarction, and endarteritis, will be considered.

Professor Councilman will lecture upon Inflammation. The modern doctrines of inflammation, the origin of pus, the behavior of fixed cells in inflammation, the relation of bacteria to inflammation, are among the subjects to be considered. The lectures will be illustrated by gross and microscopical specimens.

Bacteriology.

The instruction in Bacteriology is under the charge of Professor W. H. Welch and of Dr. A. C. Abbott, Assistant in Bacteriology and Hygiene.

The rooms for bacteriological work are in the Pathological Laboratory. They are supplied with all of the apparatus required by modern bacteriological methods, such as those employed in the Hygienic Institute in Berlin. The laboratory has a full set of cultures of pathogenic micro-organisms, and of others useful for study and teaching.

Opportunities for studying bacteriology are available for students during the entire academic year, the laboratory being open on week days from nine o'clock in the morning until six in the evening. As much time can be given to the work as the student has at his disposal.

In the bacteriological course the student becomes familiar with the preparation of the various culture media, with the principles and methods of sterilization, and with the morphological and biological characters of the micro-organisms which belong to this

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department of study, particularly with those which cause disease. The methods of making biological examinations of the air, water, and soil, are taught.

Facilities are afforded to those who are prepared to undertake original investigations in bacteriology.

A circular containing fuller details concerning the courses of instruction and the opportunities for work in the Pathological Laboratory will be sent upon application to the Registrar of the Johns Hopkins University or to the Clerk of the Johns Hopkins Hospital.

2. MEDICINE.

In this Department of the Hospital, which is under the charge of Dr. Wm. Osler, Physician and Professor of Medicine, Johns Hopkins University, are comprised—

I. The Medical Wards.
II. The general Medical Dispensary.
III. The special Dispensaries for Diseases of the Throat, Diseases of Children, and Diseases of the Nervous System.
IV. The Clinical Laboratories.

Instruction is here provided as follows:

I. Bed-side and Dispensary Teaching.

A limited number of graduates in medicine will be permitted to make the daily visit with Professor Osler and his assistants. They will receive instruction in the methods of case-taking, in physical diagnosis, and in the study of the action of medicine.

In the Dispensary, which is also under the immediate charge of Dr. Osler, the more important cases will be selected for study and demonstration.

II. Special Courses.

(*a*) In Laryngology, by Dr. J. N. McKenzie.
(*b*) In Diseases of Children, by Dr. Osler and Dr. Booker.
(*c*) In Diseases of the Nervous System and in Electro-Therapeutics, by Dr. Osler and Dr. H. M. Thomas.

III. Lectures.

(*a*) Regular weekly Clinics in the Amphitheatre, upon cases or groups of cases illustrating points in diagnosis or treatment.
(*b*) A course of twelve lectures on Pulmonary Consumption, to be delivered during January, 1890, in the Amphitheatre.
(*c*) A course of three lectures on the Practical Aspects of Cerebral Localization, to be delivered during February, 1890.

IV. Laboratory Courses.

The Clinical Laboratory, which is adjacent to the wards, consists of four rooms provided with chemical, microscopical, and clinical apparatus. With Dr. Lafleur, Assistant in Medicine, courses will be given in

(*a*) Clinical Microscopy.
(*b*) Clinical Urinology.

Opportunities will also be given to advanced students to pursue special lines of work in medicine or therapeutics.

3. SURGERY.

The Department of Surgery in the Hospital is under the charge of Dr. W. S. Halsted, Acting Surgeon to the Hospital and Associate Professor of Surgery, Johns Hopkins University.

Surgical instruction will be given in the

I. Wards.
II. Amphitheatre.
III. Private Operating Room.
IV. Dispensary.

I. Wards.

Bed-side teaching in general surgery will be given by Dr. Halsted and Dr. Brockway, Assistant in Surgery, to a selected number of graduates in medicine, from November, 1889, to March, 1890.

II. Amphitheatre.

Didactic and Clinical lectures will be given in January and February, 1890, by Dr. Halsted, as follows:

A. Didactic Lectures.

1. Antiseptic Surgery—its development (two lectures).
2. Antiseptic Surgery of To-day.
3. Antiseptic Surgery—modifications of, in special cases.

B. Clinical Lectures.

1. Surgical Tuberculosis.
2. Intestinal Suture.
3. Transfusion.

III. Private Operating Room.

Operations will be made here by Dr. Halsted daily, except Sunday, from 8–11 a. m. The privileges of this room will be extended to a selected number of graduates in medicine, from November, 1889, to March, 1890.

IV. Dispensary.

Opportunities will be here afforded to graduates in medicine to do practical work from November, 1889, to March, 1890, in the following:

(1) General Surgery, under the supervision of Drs. Halsted and Finney.
(2) Genito-Urinary Surgery, under the supervision of Drs. Halsted and Brown.
(3) Ophthalmology and Otology, under the supervision of Drs. Theobald and Randolph.
(4) Dermatology, under the supervision of Dr. Morrison.

4. GYNAECOLOGY.

The Department of Gynaecology in the Hospital is under the charge of Dr. H. A. Kelly, Gynaecologist and Obstetrician to the Hospital and Associate Professor of Gynaecology, Johns Hopkins University. It comprises:

I. The Wards.
II. The Private Operating Room.
III. The Dispensary.

Instruction will be given by Dr. Kelly and Dr. H. Robb, Assistant in Gynaecology, according to the following plan:

I. PRACTICAL WORK.

(1) The operations upon cases admitted to the wards for perineal, vaginal, vesical, uterine, tubal and ovarian diseases will be used for purposes of instruction either in the weekly clinics or in the class-room.

(2) Instruction will be given in the wards upon the after-treatment of cases which have been operated upon, their management during the period immediately following the operation and throughout the period of convalescence.

(3) The Dispensary will be used daily to a limited extent for instruction in the diagnosis of pelvic disease, with special reference to bi-manual methods of examination.

(4) Private Operating Room. The privileges of this room to see operations by Dr. Kelly will be extended to a limited number of graduates in medicine. Operations will be made daily, except Sunday, at 9 a. m.

II. LECTURES.

(1) Two lectures by Dr. Kelly on the Technique of Abdominal Surgery will be given in January, 1890.

(2) A course of four lectures by Dr. Kelly on the Pathology, Diagnosis and Treatment of Tubal and Ovarian Disease will be given in January and February, 1890.

5. HYGIENE.

This Department is under the charge of Dr. John S. Billings, Surgeon U. S. Army and Lecturer on Hygiene, Johns Hopkins University, assisted by Dr. A. C. Abbott. The course of instruction will consist of didactic lectures by Dr. Billings, and practical work in the Hygienic Laboratory, by Dr. Billings and Dr. Abbott.

I. LECTURES.

A course of lectures will be given by Dr. Billings during April, to advanced students in Hygiene and Vital Statistics.

II. PRACTICAL COURSES.

These will consist of familiar lectures, and demonstrations and practical work by students. They will comprise physical, chemical, and bacteriological investigations of the air; methods of ventilation and heating; physical, chemical, bacteriological, and general investigations of water; investigations as to the healthfulness of building sites, with reference to vegetation, soil, ground-air, ground-water, ground-temperature, and moisture and organic impurities; the study of ferments and disease-producing micro-organisms; the practical study of methods of sterilization and disinfection; the study of foods, clothing, habitations, etc.

The practical courses in the Hygienic Laboratory will extend over three months, and will commence in March, 1890.

6. PSYCHIATRY.

LECTURES.

A course of five didactic lectures for graduates in medicine will be given by Dr. Hurd, Superintendent of the Hospital and Professor of Psychiatry, Johns Hopkins University, during January and February, upon the Genesis of Delusions, the Insanities of Childhood, Pubescent, Adolescent, Climacteric, and Senile Insanities, Insanities from Constitutional Disease, and Clinical Groupings of Insanity.

FEES.

Graduates of Medical Colleges may be admitted to all of the above-mentioned courses for the sum of $100.

The charge for all courses in Pathology is,	$50
For either course,	25
For all courses in Medicine,	50
For either course,	25
For all courses in Surgery,	50
For either course,	25
For all courses in Gynaecology,	50
For either course,	25
For all courses in Hygiene,	50

These fees will include all lectures and clinics in the special departments for which payment has been made.

Graduates in Medicine who desire to attend the didactic lectures only, may do so by paying a proportionate fee. Such attendants upon lectures are not entitled to special courses of instruction without further payment.

All fees for courses are to be paid at the Johns Hopkins Hospital, North Broadway.

REGULATIONS.

These courses of instruction in Medicine, Surgery, and Gynaecology are open only to graduates in medicine, who must give satisfactory evidence to the officers of the Hospital that they are fitted to profit by the courses.

The courses in Pathology, Bacteriology, and Hygiene are open to graduates in medicine and advanced students in biology.

Letters of inquiry may be addressed to the

JOHNS HOPKINS HOSPITAL,
North Broadway,
BALTIMORE, MD.

A BRIEF ACCOUNT OF THE JOHNS HOPKINS HOSPITAL.

Johns Hopkins, the founder of the Johns Hopkins Hospital, was a merchant of Baltimore, who was born in Anne Arundel County, May 19th, 1795. He came to Baltimore to reside when a lad of seventeen years, and was afterwards, until his death, Dec. 24th, 1873, fully identified with the business interests of this city.

A short time before his death he prepared and sent the following letter to the Board of Trustees, which he had appointed to manage the Hospital, which now bears his name.

Letter of Johns Hopkins to the Trustees.

Baltimore, *March* 10, 1873.

To Francis T. King, *President*, and John W. Garrett, Hon. George W. Dobbin, Galloway Cheston, Thomas M. Smith, William Hopkins, Richard M. Janney, Joseph Merrefield, Francis White, Lewis N. Hopkins, Alan P. Smith, and Charles J. M. Gwinn, Trustees of "the Johns Hopkins Hospital."

Gentlemen:—I have given you, in your capacity of Trustees, thirteen acres of land, situated in the city of Baltimore, and bounded by Wolfe, Monument, Broadway and Jefferson streets, upon which I desire you to erect a Hospital.

It will be necessary to devote the present year to the grading of the surface, to its proper drainage, to the laying out of the grounds, and to the most careful and deliberate choice of a plan for the erection and arrangement of the buildings.

It is my wish that the plan thus chosen shall be one which will permit of symmetrical additions to the buildings which will be first constructed, in order that you may ultimately be able to receive four hundred patients; and that it shall provide for a Hospital, which shall, in construction and arrangement, compare favorably with any institution of like character in this country or in Europe.

It will, therefore, be your duty to obtain the advice and assistance of those, at home and abroad, who have achieved the greatest success in the construction and management of Hospitals.

I cannot impress this injunction too strongly upon you, because the usefulness of this charity will greatly depend upon the plan which you may adopt for the construction and arrangement of the buildings.

It is my desire that you should complete this portion of your labor during the current year, and be in readiness to commence the building of the Hospital in the spring of 1874.

[A portion of the letter referring to financial details and the colored Orphans' Home is here omitted.]

The indigent sick of this city and its environs, without regard to sex, age, color, who may require surgical or medical treatment, and who can be received into the Hospital without peril to the other inmates, and the poor of this city and State, of all races, who are stricken down by any casualty, shall be received into the Hospital, without charge, for such periods of time and under such regulations as you may prescribe. It will be your duty to make such division of the sexes and patients among the several wards of the Hospital as will best promote the actual usefulness of the charity.

You will also provide for the reception of a limited number of patients who are able to make compensation for the room and attention they may require. The money received from such persons will enable you to appropriate a larger sum for the relief of the sufferings of that class which I direct you to admit free of charge; and you will thus be enabled to afford to strangers, and to those of our own people who have no friends or relations to care for them in sickness, and who are not objects of charity, the advantages of careful and skilful treatment.

It will be your especial duty to secure for the service of the Hospital surgeons and physicians of the highest character and greatest skill.

I desire you to establish, in connection with the Hospital, a training school for female nurses. This provision will secure the services of women competent to care for the sick in the Hospital wards, and will enable you to benefit the whole community by supplying it with a class of trained and experienced nurses.

I wish the large grounds surrounding the Hospital buildings to be properly enclosed by iron railings, and to be so laid out and planted with trees and flowers as to afford solace to the sick, and be an ornament to the section of the city in which the grounds are located.

I desire that you should, in due season, provide for a site and buildings, of such description and at such distance from the city as your judgment shall approve, for the reception of convalescent patients.

You will be able in this way to hasten the recovery of the sick, and to have always room in the main Hospital buildings for other sick persons requiring immediate medical or surgical treatment.

It is my especial request that the influences of religion should be felt in and impressed upon the whole management of the Hospital; but I desire, nevertheless, that the administration of the charity shall be undisturbed by sectarian influence, discipline, or control.

In all your arrangements in relation to this Hospital, you will bear constantly in mind that it is my wish and purpose that the institution shall ultimately form a part of the Medical School of that University for which I have made ample provision by my will.

I have felt it to be my duty to bring these subjects to your particular attention, knowing that you will conform to the wishes which I thus definitely express.

In other particulars I leave your Board to the exercise of its discretion, believing that your good judgment and experience in life will enable you to make this charity a substantial benefit to the community.

I am, very respectfully, your friend,

Johns Hopkins.

During the three years which followed his death, the Trustees were busily engaged in procuring plans for the Hospital from many experts in hospital construction, which were finally adopted April 17th, 1877. Excavations were begun June 23d, 1877, and the work of construction consumed the following twelve years. The completed Hospital was formally opened with appropriate ceremonies May 7th, 1889.

At eleven o'clock in the morning, the Governor of the State, the Mayor and City Council, the Judiciary, and other Federal, State, and Municipal Officers, the Maryland delegation in Congress, the foreign Consuls, the Trustees of the Hospital, together with the officers of the Johns Hopkins University, a large number of physicians and surgeons from Baltimore, Washington, Philadelphia, and more distant places, including the Surgeons-General of the Army, Navy, and Marine Hospital Service, and a company of ladies and gentlemen representing the hospitals and other philanthropic institutions of the country, assembled beneath the dome of the central or administration building.

A marble bust of Johns Hopkins was placed upon the platform and his portrait hung upon the wall. In the assembly his only surviving sister, his sister-in-law, and others of his near kindred were seated. Flowers and flags decorated the stage.

The company was received by a Committee consisting of the following gentlemen: Clayton C. Hall, Chairman, and Henry J. Bowdoin, Frederick J. Brown, Robert A. Dobbin, John M. Glenn, Dr. William F. Lockwood Dr. Robert W. Johnson, Allan McLane, Jr., Joseph Packard, Jr., John C. Rose, Lawrason Riggs, Dr. N. Ryno Smith, Dr. Henry M. Thomas, Dr. William H. Welch, and Miles White, Jr.

Instrumental music was performed by an orchestra of which Mr. A. Itzel, Jr., was the leader.

The President of the Board of Trustees, Francis T. King, called the assembly to order and said:

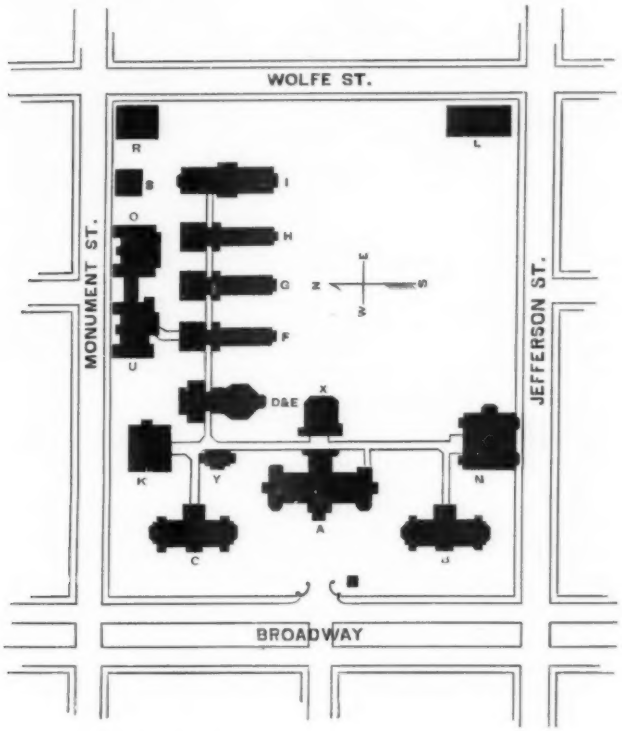
"Johns Hopkins, in his letter to his Trustees, said, 'It is my special request that the influence of religion should be felt in and impressed upon the whole management of the Hospital; but I desire nevertheless that the administration of the charity shall be undisturbed by sectarian influence, discipline, or control.' It is therefore most appropriate that we should begin the opening exercises of the Hospital by reverently waiting upon God, and asking his blessing upon this work and his abiding presence within these walls, which are to be devoted to the care of the sick and suffering."

Prayer was offered by Rev. Joseph T. Smith, D. D., of Baltimore.

Addresses were delivered by Mr. Francis T. King, Dr. John S. Billings, and President Daniel C. Gilman.

At their conclusion, several letters and telegrams were presented from the officers of other institutions at home and abroad. The wards of the hospital were then visited. Luncheon was afterwards provided for persons from out of town.

The following diagram shows the location of the buildings upon the grounds and their designs:



A.—Administration Building.
B.—Female Pay-Ward.
C.—Male Pay-Ward.
D.—Male Surgical Ward.
E.—Female Surgical Ward.
F.—Male Medical Ward.
G.—Female Medical Ward.
H.—Gynaecological Ward.
I.—Isolating Ward.
K.—Kitchen.
L.—Laundry.
N.—Nurses' Home.
O.—Dispensary.
R.—Pathological Building.
S.—Stable.
U.—Amphitheatre.
X.—Apothecary's Building.
Y.—Bath-House.

The grounds of the Hospital include four entire blocks, containing about fourteen acres of ground, having a frontage on Broadway of 709 ft., and extending back 356 ft. Elevation at gate-way, 94 ft. above mean tide, at base of main building, 108 ft., and rising in rear to 115 ft.

The following is a brief description of the buildings:

I. ADMINISTRATION BUILDING. (A)

Entrance at centre of west front. Main floor contains offices, library, and reception-room; second floor, rooms for resident medical officers; third floor, rooms for resident medical students. Bath-rooms and closets in rear projection.

II. APOTHECARY'S BUILDING. (X)

Main floor contains, on north side, officers' dining-room; south side, pharmacy and apothecary's rooms; second and third floors, 18 rooms for female servants, with bath-rooms, etc.

III. NURSES HOME. (N)

Main floor contains parlor, library, rooms of superintendent of nurses and of head nurses. Basement contains training kitchen, dining-room, lecture-room, etc. Second and third floors contain 44 rooms for nurses. Baths and closets in centre.

IV. FEMALE PAY WARD. (B)

The lower floor contains private rooms for paying female patients, with service rooms attached. The middle floor has an operating room and similar private rooms for patients, with service rooms. The upper floor has a single large room for a patient who may require absolute seclusion and quiet.

V. BATH HOUSE. (Y)

Main floor contains rooms for Turkish, Russian, and special baths. Basement floor contains common bath-rooms.

VI. MALE PAY WARD. (C)

Lower floor, officers' bed-rooms; upper floor, rooms for pay patients.

VII. KITCHEN. (K)

Main floor contains kitchen, scullery, refrigerators, storerooms, etc. Upper floor, dining-rooms for resident help. Basement, bakery, pastry-room, bread-room, meat-room, refrigerator, store-rooms. In the sub-basement are the boiler vaults, which contain water-meters, filters, coal-vaults, steam ash-lift, hot water boilers for general heating, and steam boilers to heat bath boilers, ventilator coils, bath-house, Amphitheatre, and Dispensary.

VIII. MALE AND FEMALE SURGICAL WARDS. (D AND E)

Main floor contains general ward, central hall, lavatory and closets, nurses' closet, patients' clothes-room, diet-kitchen, dining-room, and two special wards. Second story same as first.

IX. MALE AND FEMALE MEDICAL WARDS. (F AND G)

These wards have but a single story, which contains a general ward, central hall, lavatory and closets, nurses' closet, patients' clothes-room, diet-kitchen, dining-room, and two special wards.

X. GYNAECOLOGICAL WARD. (H)

Has a single story containing a general ward, central hall, lavatory and closets, nurses' closet, patients' clothes-room, diet-kitchen, dining-room, and two special wards.

XI. ISOLATING WARD. (I)

Contains twenty rooms for patients, two nurses' rooms, bath-room, diet-kitchen, nurses' closet, and linen-room.

XII. AMPHITHEATRE. (U)

This building contains lecture-room, small operating-room, consulting and recovery-rooms, accident department, etherizing-room and waiting-room. Connected with it by a narrow passage is

XIII. DISPENSARY. (O)

This out-patient department contains general waiting-room, pharmacy, surgeons' and physicians' rooms, closets and baths.

XIV. PATHOLOGICAL LABORATORY. (R)

This contains rooms for pathological and bacteriological investigation, an autopsy amphitheatre and museum.

XV. LAUNDRY. (L)

The laundry is situated at the south-east corner of the grounds and is supplied with all necessary apparatus for the work of the Hospital. It is also provided with a large steam disinfector for the thorough disinfection of clothing and bedding.

OPENING OF THE NURSES' HOME AND INAUGURATION OF THE TRAINING SCHOOL FOR NURSES.

Upon the afternoon of October 9th, a large audience gathered at the Nurses' Home to witness the inauguration of the Training School for Nurses connected with the Hospital. There were present Dr. John C. Hall, Superintendent of the Friends' Asylum, Philadelphia; Dr. Charles G. Hill, of Mt. Hope Retreat; Cardinal Gibbons; President and Mrs. Gilman; Ex-Minister J. W. Foster and Mrs. Foster; Henry D. Harvey, the only surviving partner of Johns Hopkins; Mrs. Miles White, his only surviving sister; Mayor Latrobe, C. J. M. Gwinn, Francis White, J. H. B. Latrobe, Rev. Dr. Hodges, Ex-Judge Dobbin, Daniel Pope, Dr. Alan P. Smith, Dr. James Carey Thomas, Ex-Judge Brown, Dr. Geo. H. Williams, Dr. W. G. Harrison, Dr. N. R. Smith, Dr. Thomas Murdoch, Joseph King, Joseph Merrefield, Dr. C. Johnston, Dr. I. E. Atkinson, Wm. H. Hennegan, Dr. J. A. Steuart, Dr. Shippen, James Carey, Geo. W. Corner, Lewis N. Hopkins, Thomas Corner, Reverdy Johnson, Prof. Remsen, Dr. Wm. B. Canfield, Rev. Dr. Smith, Dr. W. B. Platt, and many other professional men, Miss Marion Smith, Superintendent of Nurses, Philadelphia Hospital, and Miss West, Assistant Supt., Miss Hentze, Supt. of Nurses, Pennsylvania Hospital, Miss Dalziel, Matron Orthopaedic Hospital, Philadelphia, the Sister Superior of Mt. Hope Retreat, and about one hundred ladies from Baltimore and vicinity. The President of the Board of Trustees, Mr. Francis T. King, presided, and made the following brief address:

"The Johns Hopkins Hospital was formally opened May 7, 1889. The trustees now have the pleasure of welcoming you to the opening of the Johns Hopkins Training School for Nurses. As the organization and work of the training school and its relation to the Hospital will be spoken of by those who are to follow me, I will confine my remarks to a brief statement of the Hospital and Dispensary from May 15 to September 30—four and a-half months. As the Hospital entered upon a broken year, and the usual difficulties in starting a new institution had to be met, the trustees limited the number of ward patients to fifty until the close of this year. Like many other good resolutions, it was soon broken, and the reception of patients was left to take its natural course, as you will see by the following statistics, covering a period from May 15th to Sept. 30th, 1889:—

Hospital Statistics.

	Admission.	Pay.	Part Pay.	Free.	Medical.	Surgical.	Male.	Female.
May	35	3	4	28	18	17	23	12
June	61	9	7	45	38	23	47	14
July	74	6	8	60	42	32	47	27
August	78	8	19	51	35	43	51	27
September	83	12	7	64	44	39	52	31
Totals	331	38	45	248	177	154	220	111

Dispensary Statistics.

In the Dispensary the patients treated in May, June, July, August and September, in general medical cases were 1,740; in general surgical cases, 506; children, 339; special diseases, eye, ear, throat, skin, etc., 1,430. Total number treated since the opening, 4,015."

At the conclusion of his remarks he introduced Miss Isabel A. Hampton, the Principal of the Training School for Nurses, who spoke as follows upon

The Aims of the Johns Hopkins Hospital Training School for Nurses.

Although the existence of Training Schools for nurses is of but recent date, much that is good and practical has been written about them, and in view of all this excellent literature on the subject of nursing in its various phases, it is not befitting that our guests on this occasion should be treated to an exhaustive history of the rise and growth of Training Schools for nurses in general, but more particularly is your attention kindly asked for a brief time to consider schools for nurses as they now exist in this country, and what the future outlook may be for them in some respects, and more especially for the one which it is our esteemed privilege to assist in opening to-day. Of the various professions opened to woman during the past few years, none have made more sure and rapid growth nor met with greater public favor than that of the Trained Nurse; while all of the various types of nurses which existed before her time, still exist to a more or less degree, the trained nurse is acknowledged superior by both physician and patient, for the simple reason that the world at large readily recognizes the fact that in this work, as in all others, technical skill can only be acquired by a systematic course of practical and theoretical study under competent teachers.

It seems strange that such a system of caring for the sick should only have been adopted within this last quarter of a century, when the need has ever been as great, and the idea seemed already suggested by the various orders of Sisters of Mercy, founded centuries ago, which had proved by their deeds woman's capabilities in this direction. It certainly could not have been a lack of willing women, for no doubt plenty of women existed in the past century, who as gladly would have responded then to the demand for their services in hospitals, as the women of to-day, who offer themselves in such numbers, that the wonder grows how so many are willing, whether desirable or otherwise, to undertake a work, the grave responsibilities of which they are by no means kept in ignorance of, when they once decide to undertake the duties of a trained nurse.

Schools for nurses, in fact, consider little that is sentimental, and much that is practical, in deciding upon the fitness of a woman for nursing. While some may have more natural aptitude for the work than others, there are other attributes quite as important that are required.

Training Schools aim to receive only women who are at least fairly intellectual, the more the better results, who are strong and enduring physically, and who morally will recognize the sacredness of the work that they are engaged in; of their pupils, they require that they shall yield implicit obedience and loyalty to the physician, that they shall faithfully carry out his directions, and in his absence watch over the welfare of his patient, and further his scientific study of disease by intelligently fulfilling his orders, in administering medicines, taking account of the range of pulse and temperature, regulating the sanitary condition of the sick room, noting every unusual symptom in the patient, and keenly alive to its importance, and reporting the various changes in his condition, as the patient responds to treatment.

Thus by night or by day a nurse must be on the alert; she must have at her command presence of mind to meet any emergency, must abound in tact and patience with those suffering from mental disturbances, and be unwearying in her efforts for her patient's comfort; and all this and much more she must do cheerfully, being kind and sympathetic and adaptable to the varying necessities of the sick-room.

As an evidence of the success of Training Schools for Nurses, we find them organized or being organized in all of the principal cities and towns, in connection with all kinds of hospitals. The one regret in regard to this is, that it is not just that the authorities in very small hospitals, and in hospitals that are devoted to the treatment of one or two especial kinds of diseases, should receive women as pupil-nurses, let them profit only by the limited experience they gain in such hospitals, and then at the end of a few months graduate them as qualified trained nurses; when such graduates go forth, and undertake not only the kind of work they are qualified for, but also other branches that they are in almost entire ignorance of, they bring unjust criticism on all who call themselves by the same name. It is a cheap method of securing hospital nursing, but fair neither to the women they receive, nor to those who spend many more months and much greater labor in the large hospitals, fitting themselves for the work of caring for any and all kinds of maladies.

While the usefulness of such small hospitals is recognized, and the considerations of efficacy and economy, which lead to the attempt to train

nurses are fully appreciated, the question arises would it not be better if an arrangement could be made whereby one large school could do the nursing in several small hospitals?

Up to the present time the usefulness of schools for nurses is recognized chiefly from three standpoints. They have answered the question of how to properly care for the sick poor in our large charity hospitals and infirmaries, and have made it possible for private and church hospitals, to give their patients skilled care. The rich can also secure the same services in their homes. For women they have created a profession, which is unquestionably womanly; thus far they have ministered chiefly to the rich and the very poor.

The trained nurse is almost an unknown quantity to the poor in their homes, and to the great majority of people with only moderate incomes, who are obliged to struggle thro' with their sick as of yore, as best they may for the simple reason that a nurse is too great a luxury, as she in some instances costs more than the modest income amounts to, and cannot very often afford to render her services for less.

How to bring the services of the trained nurse into just such homes, is a problem that has caused and is causing food for serious thought in many minds. Commendable efforts have been put forth, especially in New York and Philadelphia, in this direction, but with scant success, for want of generous support, and Training Schools have been quite unable to answer this call, that has come to them so often from physicians, to supply them with skilled nursing for these classes.

Most of our large Training Schools have had pioneer financial struggles for existence, and even up to this time the greater good they would gladly undertake, they cannot do for lack of means, and they are still unsatisfied until the time comes when they will be in a position to add this branch of nursing to their course of study for pupil-nurses; in this particular as in some others, this, the Johns Hopkins Hospital School for Nurses, that is just opening its doors to teach women the art of caring for the sick is unusually blessed, for certainly never has a Training School for Nurses opened with brighter prospects.

As an essential part in the plan of a great hospital, that is so closely allied to a world-renowned university, already its name alone has made the first steps easy, for in place of being obliged to seek for women to become its pupils, they have come of their own accord, in numbers sufficient to allow the forming of its first class from women whose superior attainments promise well for the future success of the school.

The terms upon which a candidate will be accepted require, that she be between the age of twenty-three and thirty-five years, and can furnish satisfactory testimonials from physician and clergyman, that she enter upon a month of probation, and sometime during that month pass an examination in the elementary English branches; this is simply to test the applicant's ability to take notes on lectures, to write legibly and accurately reports of her patients, and to read aloud well. This amount of education is indispensable. Upon being accepted as a pupil she is required, when on duty, to wear the uniform prescribed by the institution, and is allowed a small compensation monthly, to be expended for uniform, text books and other expenses incidental to her training.

The hours for duty are from 7.30 a. m. to 7.30 p. m., with the usual hour off for meals, and additional time for study, exercise and rest. Unless in an emergency, an afternoon is allowed during the week, and half of Sunday, and a vacation of two weeks each year. The course of instruction will be given by the physicians and surgeons at the bed side of patients, and by the Superintendent and head nurses.

The proposed plan of study is much like that in other large schools for nurses. The first year the pupils will be engaged in hospital work entirely, acting as assistants in the wards, and under the instruction of appointed head-nurses, being changed from time to time, from one department of work to another. In connection with this practical work, they will receive theoretical teaching, given systematically, in classes, and by means of lectures. In their second year, they are expected to be sufficiently taught to be able to assume more direct responsibility of patients in the hospital, and to undertake the care of patients in private families. In addition to this a certain portion of each pupil's second year will be devoted to district nursing, among the poor, in their homes, under a competent head-nurse, where it is hoped that such nurses may not only leave their sick restored to health, but also leave behind them some good practical work and simple lessons in Hygiene and right living, that may result in better health and happier homes; and especially is it hoped that their presence for good may be felt in this city, as it never yet has in any city of America, in the homes of those with moderate incomes, who will be required to give in return for her services only in proportion to their means.

It is to be borne in mind that the duties of a nurse by no means cease, when the crisis of an illness is past, for after this come the days, or more often, weeks of weary convalescence, when the patient may be obliged to depend upon her almost or entirely for companionship, and her ingenuity is taxed to the utmost to render this time less irksome and tedious.

Then professional lore is of little avail, and the woman is most invaluable, who in addition to her skill as a nurse, has at her command such powers of entertaining, as can only be afforded by a fund of general knowledge, familiarity with current events, a knowledge of what is going on in the world of art, literature, and even science, and a readiness to comprehend all or anything that may be of interest to her patient.

We make it a cast-iron rule, that a nurse shall not entertain her patients with gossip over the affairs of her last patient, or with accounts of her hospital life and experiences, be she ever so urgently entreated to do so; but out of the fullness of the heart, the mouth giveth speech, and unless some means are provided against knowing nothing but hospital life and sick-rooms, the rut is inevitable. That this condition may be provided against, we trust that in these rooms some bright, pleasant, social hours may be passed, and among the books, magazines and papers that are sure to find their way here, when the need for them is realized, the pupils may spend valuable hours keeping bright, what is already theirs, and adding what is best from all, so storing the mind with knowledge, which shall serve as an antidote for weariness in the future days of convalescence. Thus it shall be the sincere endeavor to afford to each woman who becomes a pupil, opportunity to make herself familiar with all things that tend to perfect her as a nurse.

It is not so much the great amount of work that she can accomplish practically that is desired, but the kind of work, and to render unto each patient under her care nursing in its best methods, and truest sense; and as the University and Hospital are looked to from all quarters for what is best in science, so may it follow, that as time goes on and women go forth as graduates of the Johns Hopkins Hospital School for Nurses, this School may be looked to for what is best in nursing, and her graduates uphold their part of a grand work with all faithfulness.

Dr. Henry M. Hurd, the Superintendent of the Hospital, then spoke upon

THE RELATION OF THE TRAINING SCHOOL FOR NURSES TO THE JOHNS HOPKINS HOSPITAL.

The beneficent work of the Johns Hopkins Hospital antedates by many years its formal opening on May last. From its inception in the mind of its founder, and the subsequent elaboration of the idea by the Trustees so wisely chosen by him—during the preparation of its plans and in the whole course of its erection—from the first foundation stone to the last tile upon the roof, it has constantly been fulfilling its mission. It has all along stimulated hospital construction to an unprecedented degree. From a personal knowledge of hospitals east and west, I do not hesitate to say that there is not a single hospital in this broad land which has not felt the influence of its construction, either directly or indirectly, or has not been energized by its example to make more perfect provision for the care and treatment of sick people. It has taught hospitals the practical application of the laws of hygiene to heating, ventilation, house drainage, sewerage, and hospital construction in general. It has commanded attention to the importance of sunlight and air space, and to the absolute necessity of an abundant supply of pure air to each individual—a supply properly tempered to meet the varying conditions of summer heat and winter cold. The cardinal principle of the hospital has been to give the sick the most perfect hygienic surroundings attainable in a city. It has so prepared the way for better provision for the comfort of the sick, whether rich or poor, that the public now demand it. So great, in fact, has been the force of its example for good, I do not hesitate to say that had the Hospital never received or treated a single patient, the work it has already accomplished in showing the way to better hospital construction would have fully justified the expenditure of every dollar it cost.

To-day we are assembled to witness the inauguration of one of the departments of this Hospital which we hope will influence in a similar man-

ner, even if not in an equal degree, training schools for nurses throughout the country. This school has been established in compliance with the instructions of the founder of the Hospital, in the following language: "I desire you to establish, in connection with the Hospital, a training school for female nurses. This provision will secure the services of women competent to care for the sick in the Hospital wards, and will enable you to benefit the whole community by supplying it with a class of trained and experienced nurses." The Board of Trustees has carried into effect this injunction in no grudging manner. No school in this country has been more worthily housed or more fully equipped for class room and practical work, and none has ever started out with broader views or more comprehensive plans for the proper training of sick nurses. Permit me to refer briefly in passing to a few of the many advantages which it will possess. It is an organic part of the Hospital foundation, as much a part of it as any of the wards or numerous departments of the establishment. It is not under the charge of any outside governing body, but is under the fostering care of the Trustees. It is not here by sufferance. It has a right to be here; and a recognized position in all the work of the Hospital. This very fact renders the school of great value to pupil nurses. They can see service in the Accident Department and in the Dispensary; in the Medical, Surgical Gynaecological and Pay Wards; and ultimately in the houses of the wealthy and in the homes of the poor. In the eyes of the Trustees, nursing the sick is not to be considered a trade but a learned profession. If it were all routine work, following strict precedent like a rule of law, this varied service would be most valuable. When, however, it is realized that here practical work is but a part of the nurses' training, and that carefully devised courses of study and systematic mental training will accompany it, the work of the School at once enters upon a higher plane of excellence. Its course of study should be more thorough and systematic than that of any other school in the land, as it must inevitably feel the influence of the great University to which the Hospital is so nearly allied. Already systematic courses of instruction in Hygiene are projected for the School, with practical demonstrations in the Hygienic Laboratory of methods of ventilation, of determining the purity of the air and its proper degree of moisture; of simple methods of determining the potability of water; of the best methods of disinfecting clothing, rooms and bodily discharges; and the practical study of clothing, dwellings and general climatic influences from a hygienic standpoint. It is also planned that a surgical nurse shall obtain a sufficient knowledge of bacteriology to enable her to understand the absolute importance of perfect antisepsis in all surgical operations. Such a course has already been taken by a graduate nurse in connection with Dr. Welch's Laboratory, and other nurses will be expected to do similar work under competent instruction, at the proper time. The step from the undergraduate instruction of nurses in the Training School to a Post-Graduate School which shall fit graduate nurses to be teachers in other schools is not a long one. I confidently anticipate that such a school will develop in connection with this School at no distant day. I have already dwelt too long upon this aspect of the School, and must hasten to other matters.

What has the Hospital a right to expect from the pupils of this School?

1. They should have an adequate conception of the responsibilities assumed by the nurse when she enters the School. The hands of a nurse are a physician's hands *lengthened out* to minister to the sick. Her presence at the bedside is a trained vigilance supplementing and perfecting his watchful care; her knowledge of the patient's condition an essential element in the diagnosis of disease; her management of the patient the practical side of medical science. If she fails to appreciate her duties, the physician fails in the same degree to bring aid to his patient.

2. The nurse should have an enthusiasm in the work of nursing. No one should assume the work without feeling it to be of all occupations the one best suited to the tastes and capacity of the individual. Nursing to be well done should be entered upon with an "enthusiasm of humanity" which will lighten every hardship, and render the nurse happy and contented in her chosen calling.

3. She should consider nursing a profession and view it as a life work. It is not a trade, nor an occupation solely, nor a means of support simply, but a vocation which brings into activity the best sentiments of the human heart and enlists the finer sympathies of our better natures.

4. She should seek to fit herself to be a teacher of others. It should be her ambition to so learn the duties of her calling that she may become competent to impart instruction. From this School as from a centre of knowledge should go forth graduates to found similar schools throughout the land.

5. For her highest usefulness a nurse should have a capacity for sustained mental effort. Having chosen her life work and proven her fitness for it by a satisfactory period of probation, she should pursue her vocation "without haste, without rest," steadily, persistently and courageously, with a mental equipoise which keeps constantly in view a high ideal of excellence. The sweetest rewards of earth come to earnest effort and faithful accomplishment in lines of philanthropic work. They are not gained by fitful toil or half-hearted endeavor.

Lest there may be a misconception I ought to add that enthusiasm in work, devotion to duty, unresting fidelity to high ideals of efficiency, keen humanitarian impulses, and love of scientific truth, cannot and must not be considered obligations peculiar to nurses. The Trustees and officers of the Hospital accept similar obligations for themselves, and expect equal enthusiasm and devotion from all connected with the Hospital in any responsible capacity.

What on the other hand has the pupil in the Training School a right to expect from all who are connected with the Hospital?

1. The pupil nurse has reason to expect, and should receive, the respect, confidence and coöperation of every right minded person.

2. She should enjoy every facility for securing instruction, and an opportunity to obtain a higher training in every branch of knowledge which promises to increase her efficiency and usefulness.

3. She should have proper hours for work, proper hours for study and recreation, pleasant apartments, healthful surroundings, refining associations, and every incentive to effort and every aid to the accomplishment of her work.

Many hopes cluster about this Training School. The work of many years of patient labor spent in construction is over. The scaffold has been swept away, and the completed edifice stands before us. The work of the Hospital cannot be complete until this School is open and in successful operation. The poor of Baltimore in their homes, suffering for lack of proper nursing and adequate attention, look to this School for a solution of the problem of district nursing among the poor. The homes of the wealthy need no less the skilled nursing which this School aims to supply. The Trustees and Officers of the Hospital welcome the School and bid it God speed.

This concluded the formal exercises. The audience then inspected the Nurses' Home and afterwards had afternoon tea in the dining room.

A statement as to the terms of admission to the Nurses' Home is given on a subsequent page.

STUDIES FROM THE BIOLOGICAL LABORATORY OF THE JOHNS HOPKINS UNIVERSITY.

Edited by H. NEWELL MARTIN, PH. D., M. D., *Professor of Biology, and* W. K. BROOKS, *Associate Professor of Morphology.*

The publication of these studies was commenced in 1879, in order to secure publication in the United States of the results of researches carried out in the Biological Laboratory of the University and in its Chesapeake Zoölogical Laboratory. Most of the original biological work of members of the University since 1879 has been published in these "Studies." Three volumes have already been issued, and Vol. IV. is in progress. Each volume contains about 500 large octavo pages, and numerous plates. The first three volumes are now out of print.

The subscription per volume is $5.00; separate numbers may be purchased at a price varying with their size and the number of plates they contain.

Contents of Volume IV, No. 5, now ready.

Some Observations on the Effect of Light on the Production of Carbon-Dioxide by Frogs. By H. NEWELL MARTIN and JULIUS FRIEDENWALD.

On the Comparative Physiological Effects of Certain Members of the Ethylic Alcohol Series (CH_4O to $C_5H_{12}O$) on the Isolated Mammalian Heart. By JOHN C. HEMMETER.

On the Ventricular Epithelium of the Frog's Brain. By A. C. WIGHTMAN. With one plate.

On the Temperature Limits of the Vitality of the Mammalian Heart. By H. NEWELL MARTIN and E. C. APPLEGARTH. With three plates.

PRELIMINARY REPORT OF INVESTIGATIONS CONCERNING THE CAUSATION OF HOG CHOLERA.

By PROFESSOR WILLIAM H. WELCH, M. D.

Investigations of the epizootic diseases of swine, occurring in the neighborhood of Baltimore, have been made by the writer, with the coöperation of A. W. Clement, V. S., and F. L. Russell, V. S.,* in the Pathological Laboratory of the Johns Hopkins University during the past two years. We have examined about fifty hogs, from six herds, affected with hog cholera, as well as several isolated cases. In this communication, which must necessarily be brief, only a summary of the most important results will be given, a fuller report being in preparation for the volume of studies from the Pathological Laboratory, to be issued by the Johns Hopkins Hospital.

The most common and characteristic lesions consisted in superficial and deep necroses, either circumscribed or diffuse, of the inflamed mucous and other coats of the large intestine, associated often with superficial branny diphtheritic exudation. Similar necroses were occasionally found in the stomach and small intestine, in the mouth, palate and epiglottis, and less frequently in the gall bladder, bile ducts and preputial sac. Some form of pneumonia was usually, although not constantly, present. In a few cases pneumonia was present without intestinal lesions, more frequently intestinal lesions were observed with little or no pneumonia. Strongyles in the bronchi were rarely missed. Bronchitis was the rule. Pleurisy was common; pericarditis and peritonitis were present in the minority of cases. Redness of the skin was common, but inconstant. The subcutaneous, mediastinal and abdominal lymph-glands were usually swollen and reddened, chiefly in the periphery. The spleen was often normal, but in many cases was moderately and sometimes extremely swollen. The kidneys were either normal or the seat of hemorrhages and of parenchymatous degeneration or nephritis. The liver was often normal, but sometimes it presented necrotic areas. Ecchymoses were often observed in the gastric and intestinal mucosa and beneath the epi- and endo- cardium. In some cases all of the organs of the body were studded with small hemorrhages.

The bacteriological examination consisted in the study of cover-glass preparations from the different parts of the body, in the inoculation of animals, either white mice or rabbits, with parts of the lung, spleen, liver, intestine and sometimes other organs, and in the preparation of Esmarch roll cultures, usually of agar, from the blood, intestinal contents and all of the principal organs of the body.

Of the bacteria isolated in pure culture and observed in microscopical preparations of the tissues only two species were sufficiently common or had such distribution as to suggest an etiological relation to the disease. These are the so-called hog cholera bacillus and the swine plague bacillus, the former first described in the Report of the Bureau of Animal Industry for 1885 as the bacterium of swine plague and in the report for 1886 as the bacterium of hog cholera, a change of nomenclature due to the detection in certain diseased swine in this country of the latter organism which now received the name of the bacterium of swine plague, as it was believed to be identical with the micro-organism previously described by Löffler and by Schütz as the specific cause of Schweine-Seuche in Germany.

The bacilli of hog cholera are short rods with rounded ends, averaging $1\,\mu - 2\,\mu$ in length and about $0.6\,\mu$ in breadth, but forms both longer and shorter than these measurements may occur. They are very actively motile. They grow readily on all of the ordinary culture media and best at temperatures between 30° and 38° C. They do not liquefy gelatine. The growth on gelatine and on agar has a greyish or whitish color, often with a bluish translucence. Bouillon cultures present a diffuse cloudiness with whitish sediment and without surface membrane. The growth on potatoe assumes generally a brownish or yellowish tint, but it may be white, and sometimes is indistinct, although microscopically the growth is abundant. The bacilli are killed by exposure for 10 minutes to a temperature of 58° C. In cover glass preparations, from the fresh juices and tissues of animals dead of hog cholera the bacilli stain readily, and for the most part uniformly, with aniline-oil gentian-violet. If the stained specimen be treated with acetic acid, many of the bacilli appear with clear centre and stained margin, which may be either uniform or slightly thicker at the poles, as described in the Reports of the Bureau of Animal Industry. Some may present a typical polar staining, but we do not regard them as good polar staining bacilli, like those of swine plague. Various irregularities in staining appear in old cultures.

The hog cholera bacilli are pathogenic for rabbits, mice, guinea-pigs and pigeons. We shall describe here only the experiments with rabbits. These animals when inoculated subcutaneously with a platinum loop from a pure culture of hog cholera bacilli die usually in from 6 to 8 days, but the duration of life may be shorter or longer. There is generally considerable dry purulent infiltration at the seat of inoculation, the subcutaneous lymphatic glands on the same side are enlarged and often present necrotic foci; the spleen is swollen, as a rule extremely, and of a dark red color and firm consistence, the liver generally presents yellowish-white streaks and dots, the heart muscle is fatty and in some cases ecchymoses, necrotic patches and diphtheritic exudation may be found in the intestinal mucosa. The bacilli, which often occur in clumps, are found most abundantly at the seat of inoculation, in the affected lymph-glands, the spleen and the liver, and are often so scanty in the blood as to escape detection by microscopical examination. We have confirmed the statements in the Reports of the Bureau of Animal Industry of the effects of these bacilli when inoculated in pigeons.

The swine plague bacilli are shorter than the hog cholera bacilli. Measuring on the average 0.8 to $1.4\,\mu$ in length, they may be very small and present the appearance of slightly oval bodies more like cocci than bacilli, or on the other hand they may present themselves as rods of considerable length. In appearance and other properties they belong to the same group of organisms as the well known bacteria of chicken cholera and of rabbit septicaemia. They are devoid of independent motion. They grow on the ordinary culture media, with the exception of potatoe, but at ordinary temperatures the growth is less rapid and abundant than that of the hog cholera bacilli. They do not liquefy gelatine. On gelatine and agar the growth is greyish, translucent, not extending far from the point of inoculation. Bouillon cultures are sometimes diffusely cloudy but more frequently the growth is in the form of a whitish, rather viscid sediment, or in little specks, with clear fluid. When planted on potatoe there may be a feeble invisible growth for one or two generations, probably due to the transference of a little nutritive medium to the potatoe with the organisms. We have not been able to cultivate them for several generations upon potatoe. They are killed at a temperature slightly lower than that destructive to hog cholera bacilli and their vitality in cultures is much shorter than that of hog cholera bacilli. In cover-glass preparations from the fresh juices and tissues of animals dead of swine-plague inoculations the bacilli present an exquisite and typical polar staining, unless the forms are very short, when the staining is uniform. They are pathogenic for rabbits, mice, guinea-pigs, pigeons and bats. We have met two degrees of virulence in this organism. The one kind kills rabbits in from 16 to 30 hours with enormous multiplication of the bacilli in the blood and organs; the other kind destroys life in from 2 to 6 days, occasionally longer, with extensive purulent and serous infiltration at the seat of inoculation, often with peritonitis, and with frequently few bacteria in the blood and organs but an immense number in the inflammatory exudates.

Regarding the distribution in the diseased hog of these two species of bacteria, great variety exists, which cannot be fully described in this short communication. In some cases the hog cholera bacilli have been found abundantly in the blood, intestine and all of the organs, in other cases they have been present only in certain parts, most frequently the spleen and liver, and absent in other parts. They may be absent from the spleen when abundant elsewhere, as in the kidney.

The swine plague bacilli, when present, likewise vary in different cases in their distribution. They are most frequently found in hepatized areas in the lungs, but they may also exist in the intestine, the blood and various organs.

As regards the frequency with which each of these organisms has been found in the diseased hogs we have met the following groups of cases: first, herds of diseased swine in which only the hog cholera bacillus has been found; second, herds in which only the swine plague bacillus was present; third, herds in which both the hog cholera bacillus and the swine plague bacillus were present in the same animal, or the hog cholera bacillus in some animals and the swine plague bacillus in others of the same herd.

*F. L. Russell was associated with us in the work for about one year.

We have met a few, chiefly scattered, cases in which neither the hog cholera nor the swine plague bacillus was found.

We have not been able to establish any constant anatomical differences between the cases in which the swine plague bacilli alone were present and those in which only hog cholera bacilli or both organisms were found. While we have frequently found only the swine plague bacilli in extensive hepatized areas in the lungs, we have also sometimes found the hog cholera bacilli alone in apparently similar pneumonias. We have not met any epizootic corresponding to the German Schweine-Seuche in which pneumonia existed in any large number of cases without intestinal lesions.

With these results we naturally looked with especial interest to the effects of inoculation of healthy hogs with pure cultures of each of these organisms. The most stringent precautions were taken in the selection and care of the experimental hogs.

Two hogs, weighing about 75 lbs., not subjected to any preliminary treatment, were fed each 225 cc. of bouillon culture of hog cholera bacilli. The one died in 4 and the other in 8½ days with extensive diphtheritic inflammation and superficial circumscribed necroses of the large intestine, with moderate swelling of the spleen and of the lymphatic glands, and with ecchymoses in the lungs and elsewhere. Strongyles were present in the bronchi but there was no pneumonia. Hog cholera bacilli were found in abundance in the blood, intestine and organs. In a third hog 6.5 cc. of the same bouillon culture were injected with antiseptic precautions into the duodenum. Death occurred in 7 days with the same lesions as in the preceding hogs. Two hogs exposed in the same pen with the first hog were sick for a number of days and gradually recovered. These, when killed, presented undoubted evidence of the previous existence of acute diphtheritic inflammation of the large intestine.

The injection into the thigh and into the lung of 5 cc. of the same bouillon culture in two other hogs produced only localized sloughs with slight constitutional disturbance. The hogs were killed at the end of five weeks and hog cholera bacilli were found alive in the sloughs but none elsewhere in the body.

The injection into the right lung of a pig of 8 cc. of a pure bouillon culture of swine plague bacilli was followed in 48–60 hours by death with extensive pneumonia, double fibrinous pleurisy, pericarditis and peritonitis and with very abundant swine plague bacilli in the exudates, the blood and the organs. Intestinal lesions were absent. The injection of 0.5 cc. bouillon culture of swine plague bacilli into each lung of another pig was followed by great rapidity and difficulty of respiration and coughing. The animal was killed at the end of a week. Double sero-fibrinous pleurisy and pericarditis and foci of pneumonia were found. The swine plague bacilli were present in abundance. The injection of pure cultures of swine plague bacilli with a fine hypodermic needle into the peritoneal cavity was not followed by any manifest effects, but in two cases in which laparotomy was performed with antiseptic precautions and pure cultures of swine plague bacilli (6.5 cc.) were injected into the duodenum the animals died in from 16 to 30 hours with acute diffuse peritonitis, pleurisy and pericarditis and enormous number of swine plague bacteria in the exudates, blood and organs, but without intestinal lesions. Doubtless some of the culture escaped into the peritoneal cavity. Subcutaneous inoculations in two cases and feeding in four cases of swine plague cultures produced no lesions, save localized abscesses and sloughs after the injections.

It is evident from these experiments, which, together with others, will be reported more fully hereafter, that both the hog cholera bacilli and the swine plague bacilli are pathogenic for swine, that the former when fed or injected into the duodenum, even in comparatively small quantity, are capable of producing intense diphtheritic inflammation and necrosis of the large intestine with general infection and the latter when injected into the thoracic cavity or into the injured peritoneal cavity of causing pneumonia and inflammation of serous membranes.

If, as seems probable, from these observations and experiments the hog cholera bacilli are to be regarded as the cause of hog cholera, at least of the intestinal lesions, how are we to explain the failure to find these bacilli in a number of cases of the disease. A number of possibilities suggest themselves. First, the bacilli may be confined to the intestine and mixed with so many other bacteria that it is difficult or impossible to isolate them. Their morphology and the appearance of their colonies are so little characteristic that this might readily happen. That this, however, cannot always be the explanation, is evident from the fact that, in several instances, rabbits inoculated with typical necrotic buttons have survived, and cultures and inoculations from other organs have failed to reveal the bacilli of hog cholera. Second, the bacilli may be confined to the intestine, and so modified that they fail to kill rabbits when inoculated subcutaneously. These bacilli appear to vary somewhat in their virulence and the possibility suggested can not at present be disproven. Third, as in cases of typhoid fever and croupous pneumonia in human beings, the specific bacilli may disappear in the later stages of the disease. This explanation, which is suggested in the Reports of the Bureau of Animal Industry, seems to us probable, but as already mentioned we have not been able to distinguish anatomically cases in which hog cholera bacilli could not be detected from some of those in which they were present.

It is not clear to us what role is to be assigned to the swine plague bacilli in the natural infections which we have studied. The facts that experimentally the swine plague bacillus is capable of causing extensive pneumonia and inflammations of serous membanes and that epizootics occur in swine in Germany with these as the predominant lesions without intestinal disease, suggest that this organism, which is apparently identical with that of the German Schweine-Seuche, is also the cause of a similar affection in this country. We are not, however, aware that any swine epizootic of pneumonia without any intestinal lesions and with the sole presence of the swine plague bacillus has been observed in this country, although cases of this description occur scattered in epizootics of hog cholera with intestinal lesions. Until such an epizootic is observed in this country it is not likely that the question will be thoroughly elucidated as to the role of the swine plague bacilli. It is possible that the swine plague bacilli are frequently present in the mouth, the air passages or the intestine of healthy hogs, analogous to the frequent presence of the micrococcus of sputum-septicaemia and of pneumonia in the mouth of human beings, and that in the mixed infections which we have observed the wide spread diffusion of the swine plague bacilli is due to secondary invasion following infection with the hog cholera bacilli. This, however, does not remove the grave significance of the swine plague bacilli, which certainly can not be ignored in our studies in this country of the diseases known as hog cholera or swine plague.

While differing in some points from the conclusions reached by the workers on this subject in the Bureau of Animal Industry, we take pleasure in recording the essential harmony of our observations with the facts which they have observed in their painstaking and creditable investigations of this difficult subject as reported since the year 1885.

Through the kindness of Dr. F. S. Billings we have had the opportunity of examining a number of cultures from diseased swine in Nebraska, chiefly direct cultures from the spleen. These in nearly all instances were pure cultures of the hog cholera bacillus. Much confusion has resulted from Dr. Billings' attempt to identify this organism with that of Schweine-Seuche.

We have had the opportunity of examining cultures of Schweine-Seuche and also of the Scandinavian swine pest, obtained from the Hygienic Institute in Berlin. The organism in the Schweine-Seuche cultures is apparently identical with the swine plague bacillus which we have isolated. The organism in the swine pest cultures is a different species of bacillus, and appears to resemble closely, if it is not identical with, the hog cholera bacillus.

We regard it of importance that the future study of swine affected with hog cholera or swine plague should be accompanied with a more thorough bacteriological examination of each case than has hitherto been customary. The mere production of a direct stab culture from one organ, such as the spleen, or the mere inoculation of an animal with material from one organ affords very incomplete and unsatisfactory information. So long as the relations of the two organisms, the hog cholera bacillus and the swine plague bacillus, to the diseases of swine are not thoroughly clear, it seems to us necessary to make Esmarch or plate cultures from the blood, the intestine and the principal organs of the body, and also to inoculate animals with material from the lungs, spleen, intestine, etc. The full report of our cases will make clear the value of both of these procedures. A single case thoroughly investigated according to modern bacteriological methods is of more value than many cases in which only stab cultures have been made from one or two organs, or in which reliance is placed solely on the results of inoculating animals. We are also convinced that little reliance can be placed upon the results of experimental inoculations of swine with the suspected organisms of hog cholera and of swine plague in regions where the disease prevails, unless very strict precautions are taken in the selection and care of the experimental animals.

ON THE VALUE OF LAVERAN'S ORGANISMS IN THE DIAGNOSIS OF MALARIA.

By PROFESSOR WILLIAM OSLER, M. D.

The attitude of the profession on the question of micro-organisms of malaria is one of judicious skepticism. Between the bacillus malariæ of Klebs and Tomassi-Crudelli, and the protozoa described by Laveran, the average doctor cannot be expected to decide; but even among workers and teachers, there is by no means unanimity. So far as I know, there has been no confirmation of the observations of the first named authors on a specific bacillus in the disease. It is far otherwise with the organisms described by Laveran, whose work has now been confirmed by competent observers in Italy, America and India. I do not know of a single clinician or pathologist, living in a suitable region, who has really worked at the subject, who has not been convinced of the truth of Laveran's statements. Doubtless many have had my experience. In 1886, at the meeting of the "Association of American Physicians," when Dr. Councilman presented a summary of Laveran's views, I (speaking out of the fulness of my ignorance) was extremely skeptical. When I had the opportunity of giving to the question, the study which its importance demanded, I was soon convinced, and I had the satisfaction of confirming, in almost every particular, the observations which Laveran had made, and discussed the whole subject in a paper, published in the *British Medical Journal*, March 12, 1887. For the past two years, at the Philadelphia and University Hospitals, I have had abundant opportunities of studying cases of malaria, with an ever-deepening conviction that the organisms of Laveran are peculiar to the disease.

The experience of Dr. Vandyke Carter, Principal of the Grant Medical College, Bombay, one of the most distinguished pathologists in India, appears to have been very similar to my own. He, too, had been rather repelled by the apparently extraordinary statements of Laveran, and had not given careful study to the subject, until the appearance of my paper in the *British Medical Journal*. His elaborate contribution to the subject, one of the most important which has been made, confirms in almost every detail the statements of the French observer. To the impartial student, this remarkable unanimity in observations made by Laveran in Algiers, by Marchiafava and Celli and Golgi in Italy, by Councilman, James and myself in this country, and by Vandyke Carter in India, should, to say the least, carry conviction as to the importance and constancy of these bodies in malaria. While it may be a little early to ask acceptance of the view that these organisms constitute the specific germ of the disease, the work already done warrants positively the statement that they are peculiar to and diagnostic of the presence of the malarial poison. It is not surprising that certain observers, who have perhaps seen but few cases, have been inclined to regard the changes in the red corpuscles as degenerative rather than as the manifestations of an intra cellular parasite; but the study of the remarkable serial development of the segmenting forms described by Golgi cannot possibly be explained by any other view, than that we are dealing here with an independent organism. The crescentic bodies, too, are so peculiar, so characteristic, so unlike anything which we meet with in the blood in other conditions, that I have usually found it an easy matter to convert the most hardened unbeliever by a demonstration of their presence in a few cases. Still more remarkable are the flagellate organisms.

Putting aside, for the time, until the complete life history of these organisms shall be worked out, the question of their etiological relation to the disease, I would briefly refer to their diagnostic importance. In my former paper, I gave in this connection several interesting illustrations. Since that date, I have, in an increased experience, become even more convinced of the really great value in doubtful cases of these blood examinations. In ordinary intermittent fever, of recent origin, there is hardly ever any question in the diagnosis, and any doubts which may exist, quinine readily clears up. The value of the blood examination lies particularly in the chronic cases and in anomalous forms. Here one has to be constantly on guard and it may be impossible for days to determine definitely the nature of the affection. We have since the opening of the hospital, admitted twenty-four cases of malaria to the wards, of which, in seven instances, the diagnosis was definitely determined by blood examination, and could have been determined in no other manner. So important do we consider it, that we now, as a matter of routine, examine the blood of all cases of fever, and indeed all cases of low temperature, which seem so peculiar in certain forms of chronic malarial poison. We had a salutary lesson in the early part of the summer, in the case of an old man, aged 81, admitted July 25th, with a temperature of 104°. He had on the 9th, a heat stroke, while picking berries, was better the next day and kept about until his admission. There were signs of bronchitis at the bases of the lungs, and in the right inter-scapular region, the note was higher pitched and the breathing tubular. The temperature rose to 105°, and throughout the 26th, 27th and 28th, kept between 101° and 103°; on the 28th, between the hours of 6 and 12 a. m., the temperature was subnormal, but he had no chills. He was extremely feeble, not cachectic or sallow; the pulse was very irregular. Neither I nor Dr. Atkinson, who saw the case for me during an absence of three days, had any other idea than that the case was one of low pneumonia in an elderly man. The patient died on the 8th day of his admission, and to my surprise and chagrin the post-mortem examination of the blood and spleen showed the case to have been one of malarial fever. Had a thorough blood examination been made and full doses of quinine administered, the man's life might have been saved. In five or six cases of irregular fever, the presence of the organisms in the blood has determined the nature of the disease.

The routine examination is really not tedious, and we have adopted it now in the dispensary, as well as in the wards. Unfortunately for the general practitioner, the determination of the intra-cellular forms requires a tolerably high power with good illumination. We use the one-twelfth immersion, but with care a good eighth is sufficient, and in the chronic cases, with the crescents in the blood, a sixth suffices. It is important to have the finger tip, from which the blood is drawn, thoroughly cleansed, and it is best to take a very small drop of blood, so as to have the layer uniformly and thinly spread out with the corpuscles isolated not in rouleaux.

Briefly to summarize for the information of those who may not have access to monographs on the subject, the following are the important facts relating to these organisms:—First; In the acute forms of malaria there exists, within certain of the red corpuscles, amœboid bodies, usually pigmented, which undergo a definite evolution, increasing in size, gradually filling the entire corpuscles, and which prior to and during the chill, undergo a remarkable segmentation. There are also, in some cases, free pigmented bodies. To the form within the corpuscles, which undergoes changes, the term *plasmodium* has been applied. Occasionally in acute forms, flagellate bodies are seen free in the blood, presenting from three to eight long, actively moving cilia. According to Councilman, these are much more common in blood withdrawn from the spleen.

Second; In more chronic cases, particularly in the forms of remittent fever, which are so apt to be taken for typhoid, the corpuscles do not so often present the intercellular forms, but there are remarkable ovoid, rounded and crescentic bodies deeply pigmented. These are, in all probability, related to and developed from intercellular forms. From certain of these, particularly the ovoid and rounded forms, the flagellate bodies may be seen to develop. Dr. Ghriskey has recently been studying the evolution of these forms in the Clinical Laboratory, and has been able to demonstrate on many occasions the development of the flagellate bodies from ovoid-rounded forms.

I hope, in an early number of the forthcoming Hospital Reports, to review fully the present status of the malaria question and to report our experience, particularly in the anomalous forms of fever in which the blood examination is so important. It is particularly to be desired that those who have ample opportunities for the study, shall approach the problem with unbiassed minds. It requires a little patience in order to become thoroughly familiar with the various phases of development of the organism. Additional workers are needed. We have yet to determine fully the relation of the forms to each other and the complete life history of the parasite in the body; and, what is much more important, to ascertain its existence outside and to learn the conditions of its development and the way in which it gains access to the body.

A ready method of separating malarial from other forms of fever will prove a great boon to southern physicians. Dr. Carter's paper contains many illustrations of the value of Laveran's observations in this respect, and workers in sub-tropical and tropical regions cannot longer afford to neglect so valuable an aid in diagnosis.

PROCEEDINGS OF SOCIETIES.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Meeting of October 22nd, 1889.

Dr. WELCH in the Chair.

Multiple Thrombi—Multiple Gangrene.—By Dr. OSLER.

The following case supplements, in an interesting way, the one which I reported three years ago at the Association of American Physicians. The patient, a man aged fifty, was admitted to the Philadelphia Hospital Nov. 29, 1888, under Dr. Curtin, who very kindly allowed me to use the case in my ward-class and to make the examination. The man had been a moderately hard drinker; had served in the army, but had enjoyed ordinary health. A few days before admission he noticed a discoloration of the left toes, which gradually extended to the foot. Within three days after admission the right toes became discolored, and a few days afterwards the tips of the fingers of the left hand. The gangrene gradually extended until, in the left leg, it reached to the knee; in the right, to the middle of the leg. In the left arm the index finger and the tips of the second and third were affected, and an extensive patch formed on the left elbow. He had moderate fever; the constitutional disturbance was very slight, and the mind remained clear. No evidence could be detected of heart disease. Death occurred on the 11th of December. The autopsy was negative except the condition of the arteries. The thoracic and abdominal viscera were normal. The aorta was smooth; a few flakes of atheroma on the intima of the abdominal portion. The left axillary artery was plugged with a firm old thrombus, which extended some distance into the brachial. Both femorals were plugged. In the left the thrombus extended into the profunda femoris and into the popliteal. In the right the popliteal was chiefly involved.

These rare cases of multiple thrombi, occurring without diseases of the blood vessels or of the heart, would seem to indicate that there are blood conditions, possibly associated with toxic agents, in which spontaneous thrombosis may occur.

Dr. WELCH said that it does not seem possible to explain the multiple thrombosis in the case reported by Dr. Osler, and in similar cases, by the causes which are usually assigned as the explanation of thrombosis. These two causes are slowing of the circulation and changes in the vascular wall. In Dr. Osler's case the internal coat of the thrombosed vessels was essentially normal; nor was there evidence of any sufficient slowing of the circulation. Dr. Welch referred to experiments which he had made showing that extensive alterations of the intima may be present without thrombi. The experiments of Köhler, Havan, and others, had rendered it probable that a third factor may be concerned in the production of some thrombi. This factor is some alteration in the composition of the blood, analogous to that which may be produced experimentally by the injection of a large quantity of fibrin ferment. It seems reasonable to suppose that in the case reported the thrombosis is dependent upon an alteration in the constitution of the blood, although we can not at present define the exact nature of this change.

Miliary Aneurism of a branch of the Gastric Artery.

Dr. WELCH presented a specimen showing miliary aneurism of a branch of the gastric artery. The rupture of the aneurism had given rise to fatal haematemesis.

The patient was a man about 50 years of age, who had not been under the observation of a physician before the fatal accident occurred. His health was not vigorous, but no definite clinical history of his previous condition could be obtained. The patient was seized during the night with profuse vomiting of blood which in a few hours terminated fatally. Gastric ulcer was suspected.

At the *post-mortem* examination the stomach was found filled with dark, partly coagulated blood. On removing this a thick layer of tenacious bloody mucus coated the inner surface of the stomach. No ulceration of the stomach could be detected. It was only after long-continued search, which was rendered unusually difficult by the adherent bloody mucus, that a minute loss of substance, not exceeding 3 or 4 mm. in diameter, was found in the mucous membrane of the posterior wall of the stomach, about midway between lesser and greater curvature and pylorus and cardia. In the floor of this perforation of the mucosa lay a small aneurism about the size of a split pea. The aneurism was of a sub-mucous branch of the coronary artery and it had ruptured at the point nearest the cavity of the stomach so that a fine probe could be passed through the perforation in the mucous membrane directly into the lumen of the artery.

The aneurism was the result of an arteritis. There existed a wide spread *endarteritis obliterans* affecting the medium sized and small arteries over a large part of the body, including those of the stomach, kidneys, spleen, heart and lymphatic glands. Although this condition suggested the existence of syphilis, no further evidence of syphilis could be found at the autopsy. The kidneys were the seat of advanced chronic interstitial nephritis, being small, granular and with fibroid glomeruli. The heart was hypertrophied without valvular lesions and presented patches of fibroid induration.

The case is instructive on account of the comparative infrequency of rupture of miliary aneurism of the stomach with fatal haematemesis. The readiness with which such a minute perforation of the gastric mucous membrane might be overlooked at the autopsy is calculated to awaken scepticism regarding certain cases of fatal gastrorrhagia reported without demonstrable lesion of the stomach and therefore attributed to capillary or parenchymatous hemorrhage in persons not affected with cirrhosis of the liver or other conditions causing portal obstruction.

Dr. OSLER remarked that in haematemesis from portal obstruction bleeding might occur from the mucous membrane of the stomach without discoverable lesions, the blood sweating out, as it were, in a profuse diapedesis. It is remarkable in such cases to see an intact mucosa. Such specimens, as the one shown by Dr. Welch, illustrates the care with which an inspection should be made, as so small a lesion might readily be overlooked.

Dr. COUNCILMAN mentioned a case in which death resulted from profuse haematemesis and at the autopsy an opening 1½ mm. in diameter in the mucous membrane of the stomach led into a vein of about the same size. Several months before there had been haematemesis. There was extensive *cirrhosis hepatis*, enlarged spleen and ascites. It could not be ascertained whether the previous attack of haematemesis was due to the same cause.

Dr. KELLY said these cases bring up a very important question, that is, the possibility of performing a successful laparotomy; in no case which has come within the range of his observation has the autopsy on a case of gastric or pyloric hemorrhage shown that surgery could have been of any assistance. Either the disease was too advanced, or the technical difficulties of finding the seat of hemorrhage, and then of treating it, were so great that the chances for the patient would have been very small indeed.

Dr. OSLER said in case of a man bleeding to death under such circumstances, it would not be thought a wise procedure to submit the patient to laparotomy; of the fatal cases which he had seen, there had not been one in which the vessel could have been secured. Even post-mortem it was sometimes a difficult matter to find the bleeding point.

Dr. HUNTER ROBB, *Secretary.*

Meeting of November 4th, 1889.

Dr. WELCH in the Chair.

The Radical Cure of Hernia.

Dr. WM. S. HALSTED presented five patients upon whom he had performed his operation for the cure of inguinal hernia. He described the operation as follows:

1. The incision begins at the external abdominal ring, and ends one inch or less (less than one inch in children) to the inner side of the anterior superior spine of the ilium on an imaginary line connecting the anterior superior spines of the ilia. Throughout the entire length of the incision everything superficial to the peritoneum is cut through.

2. The vas deferens, with its vessels, is carefully isolated up to the outer termination of the incision, and held aside.

3. The sack is opened and dissected from the tissues which envelop it.

4. The abdominal cavity is closed by quilted sutures passed through the peritoneum at a level higher by 1½–2 inches, than that of the so-called neck of the sack.

5. The vas deferens and its vessels are transplanted to the upper outer angle of the wound.

6. Interrupted, strong silk sutures, passed so as to include everything

between the skin and the peritoneum, are used to close the deeper portion of the wound, which is sewed from the crest of the pubes to the upper outer angle of the incision. The cord now lies superficial to these sutures, and emerges through the abdominal muscles about one inch to the inner side of the anterior superior spine of the ilium.

7. The skin is united over the cord by interrupted stitches of very fine silk. These stitches do not perforate the skin, and when tied they become buried. They are taken from the under side of the skin, and made to include only its deep layers—the layers which are not occupied by sebaceous follicles.

Dr. Halsted has for more than two years sewed most of his wounds in this way. The method was suggested to him from his experiments on dogs. He thinks that it is very difficult, and perhaps impossible, to disinfect the skin of a dog, and believes that pyogenic organisms may occasionally be present in the sebaceous follicles of the skin. At any rate, he had repeatedly observed pus in the suture holes of the perforating skin stitches, and could not with any certainty secure primary union of the skin wounds of dogs until he had resorted to this subcutaneous method of sewing the skin.

Dr. Halsted remarked in this connection that whether or not it were possible or easy to disinfect absolutely the human skin, he had been much impressed with the fact that skin sutures not infrequently suppurate, even in wounds sewed by the most careful surgeons in this country and abroad. He thought it advisable, therefore, to test for a time the subcutaneous, buried, skin suture.

8. One or two small, short gauze plugs are used as wound drains.

The After Treatment.—The gauze plugs are removed at the first subsequent dressing—usually at about the seventh day. The patients are allowed to walk about on the 21st day.

The following is a brief summary of the cases:—

CASE 1. Wm. H. Richardson, colored, age 8 years. Operation, June 13th, 1889, for the cure of large congenital inguinal hernia on the right side. The sack when opened contained caecum and vermiform appendix—a very short mesocoacum bound the sack to its contents.

June 2d. The wound has healed by first intention, except where the gauze plug was introduced. Linear cicatrix.

July 4th. Patient is allowed to get up and walk about.

CASE 2. George Holdorf, German, blacksmith, age 20. Operation, June 17th, 1889, for the cure of a moderately large, reducible, right inguinal hernia.

June 18th. Gauze plug removed.

June 25th. Patient is discharged for misdemeanor. Wound has healed by first intention. Linear cicatrix.

CASE 3. John Bleecher, German, blacksmith, age 48. Operation, Aug. 16th, 1889, for the cure of a large, reducible, right inguinal hernia. The neck of the sack was large enough to admit the tips of four fingers.

Aug. 26th. Passes urine through wound. Infer that one of the deep sutures was passed through the wall of the bladder.

Sept. 4th. Patient passes all of his urine through the penis.

Sept. 17th. Patient is out of bed. The wound is healed except at its lower angle.

CASE 4. Joseph Davis, age 8 years. Operation, Oct. 9th, 1889, for the cure of a small, reducible, left inguinal hernia.

Oct. 19th. Wound has healed by first intention. Linear cicatrix.

Nov. 3d. Boy is allowed to get up and walk about.

CASE 5. Frank Fisher, age 7 years. Operation, Oct. 12th, for the cure of a small, right inguinal hernia.

Oct. 20th. Wound has healed by first intention. Linear cicatrix.

Nov. 4th. Boy is allowed to get up and walk about.

Dr. HUNTER ROBB, *Secretary.*

HOSPITAL JOURNAL CLUB.

The first meeting of the Hospital Journal Club was held in the Library of the Hospital, October 29th, 1889, at 4.30 p m.

Reports on current literature were made as follows:

PROFESSOR OSLER.—*General Medicine.*

Gall Stones, Tait.
(*Edinburg Med. Journal*, Oct., '89.)

Uraemic Stomatitis, Barié.
(*Archives General*, Oct., '89.)

Milk of Tuberculous Cows, Ernst.
(*American Journal of Med. Sc.*)

The infective nature of the flesh from tuberculous cows, Bollinger.
(*Münchener Med. Woch.*, '89, No. 37.)

PROFESSOR COUNCILMAN.—*Pathology.*

Articles on Inflammation, Grawitz.
(*Virchow's Arch.*, 116 and 118.)

Inflammation, Weigert.
(*Fortschritte d. Med.*, No. 16, '89.)

DR. ABBOTT.—*Hygiene.*

"The influence of Ventilation upon the number of organisms floating in the atmosphere." *Stein.* (*See Abstract below*).
(*Zeit. f. Hygiene*, Bd. 7, Heft I.)

"Lime as a disinfectant for Typhoid and Cholera dejections." *Pfuhl.*
(*Zeit. f. Hygiene*, Bd. 6, Heft I.)

"Experiments to determine the possibility of infection from the use of the flesh of tuberculous cows." *Kastner.*
(*Münchener Med. Woch.*, Nos. 34 and 35.)

"The employment of Sterilization in preventive and curative therapeutics." *Schneider.*
(*Correspondenzblatt für Schweizen Aerzti*, No. 10, '89.)

"The distinctive characteristics of the Gonococcus." *Neisser.*
(*Erster Kongress der deutschen dermatologischen Gesellschaft in Prag*, June, '89.)

At the regular meeting Nov. 7th, 1889, reports were made as follows:

DR. BROCKWAY.—*General Surgery.*

"Lavage of the Peritoneal Cavity." *Trélat and Delbet.*
(*Bul. d. l'Acad. de Med.*, June 24th, '89.)

"Gunshot wounds of the abdomen with special reference to wounds of the intestines." *Lewis A. Stimson, M. D.*
(*N. Y. Med. Journal*, Oct. 26th and Nov. 2nd, '89.)

DR. ROBB.—*Gynaecology.*

"Dyspareunia caused by a rare injury to the Hymen." *Paul F. Mundé.*
(*Am. Jour. of Obstetrics.*)

"The surgical treatment of tuberculosis of the peritoneum." *F. Spaeth.*
(*Deutsche Med. Woch.*, No. 20, '89.)

DR. H. M. THOMAS.—*Neurology.*

"The comparative study of diseases of the nervous system." *Hughlings Jackson, M. D.*
(*British Med. Journal*, Aug. 17th, '89.)

The regular meeting of the Hospital Journal Club was held Nov. 14th, 1889. Twenty members present. Abstracts from the following papers were read:

DR. R. B. MORISON.—*Dermatology.*

"Three rare forms of skin disease."
(*International Atlas of Rare Skin Dis.*, Part I.)

"Histology of Syphilis." *Neumann.*
(*Vierteljahrschrift*, '85.)

"Myositis syphilitica." *Neumann.*
(*Ibid.*, '88.)

DR. JAS. BROWN.—*Genito-Urinary Surgery.*

"Report on the various methods employed for removal of stone from the bladder."
Surgeon-Maj. B. S. Freyer.
(*Brit. Med. Journal*, Oct. 12th, '89.)
Keellum, Keegen, Walsham, Thompson, McCormac.
(*Brit. Med. Journal*, '87.)

Partial Prostatectomy. *McGill.*
(*Brit. Med. Journal*, Oct., '89.)

DR. R. L. RANDOLPH.—*Ophthalmology.*

"Weitere Erfahrungen und Studien über die Kataraktextraction," 1882–1888: Antisepsis und Technik." *Ph. Steffan*, in Frankfort-a.-M.
(*Graefe's Arch. f. Ophthalmologie*, Bd. XXXV, 2.)

"Bericht über die, mittelst antiseptischer Wundbehandlung erzieltene, Erfolge der Staaroperation." *Prof. Dr. Alfred Graefe.*
(*Ibid.*, Bd. XXXV, 3.)

"La suture de la cornée dans l'operation de la cataracte." *M. Suarey de Mendoza.*
(*Arch. d'Ophthalmologie*, T. IX, No. 5.)

"Zur operativen Netzhautbehandlung." *Dr. Schoeler.*
(*Sitzung der Berliner Med. Ges.*, Feb. 6, '89.)

THE INFLUENCE OF VENTILATION UPON THE NUMBER OF ORGANISMS FLOATING IN THE ATMOSPHERE.

At the first meeting of the "Hospital Journal Club" under the Section for Hygiene, reference was made to an important series of experiments upon ventilation in its relation to the number of bacteria present in the air of rooms.

These experiments, a full account of which appears in the *Zeitschrift für Hygiene*, Band 7, Heft I, were made by R. Stern in the Hygienic Institute of the University at Breslau.

The author reviews the normal relation of the germs to the atmosphere. These conditions may be summarized as follows:

(1). Except by very strong winds bacteria are never driven off from moist surfaces.

(2). For this reason, only the organisms which are not killed by being dried are found in a living condition suspended in the air.

(3). In general, it is uncommon to find isolated or single organisms in the air. They are usually present in numbers or colonies clustered together upon coarser dust particles.

(4). In still air, because of their higher specific gravity, they quickly gravitate to the surface.

(5). A multiplication of bacteria does not occur in the atmosphere because of the absence of the necessary amount of moisture.

(6). In harmony with the last two facts are the observations of Hesse, Frankland, and Petri, namely—that in general, the number of organisms present in the air is small. This is especially the case over moist surfaces and in sheltered spaces where the air has been but little agitated.

Bearing in mind these facts, Stern endeavored to arrange his experiments so as to have as nearly normal conditions as possible, but for purposes of accuracy he increased the number of organisms upon which to work to a degree rarely or never found in the air.

A room with four ventilators was selected; two of which brought air to the room and two carried it away. In each case one ventilator for incoming and one for outgoing air were under the ceiling, on opposite walls, the remaining two being just above the floor. By this arrangement diagonal currents from floor to ceiling (summer ventilation) or from ceiling to floor (winter ventilation) could be produced at will.

He then closed all registers, cracks and openings by which air could enter; thoroughly disinfected walls, floor and ceiling with sublimate solution and analyzed the air for bacteria. None were found.

His next step was, by aid of an atomizer, to completely fill the air with a mixture of dust and bacteria and determine what effect would be produced upon the number of organisms present in the air by—

(1). Allowing the air to be perfectly quiet for a given period of time.

(2). Moderate ventilation (renewal of the whole volume of air 1 to 3 times an hour).

(3). High degree of ventilation (renewal of air 6 to 7 times an hour).

(4). Saturation of the air in the room with aqueous vapor.

His conclusions were as follows:

(*a*). When the air of the room was perfectly still the dust and bacteria sank quickly to the floor.

Where ordinary dust (as from library or school shelves) was employed the air was almost entirely free from bacteria after an interval of one and a half hours.

(*b*). With ordinary ventilation, that is, a renewal of the air 1 to 3 times an hour, the disappearance of organisms from the atmosphere took place hardly more quickly than when the air was allowed to remain still. When "winter ventilation" was employed, the diminution in the number of organisms was slightly hastened.

(*c*). An increase in the degree of ventilation increased gradually the rate of disappearance.

The lowest limit of ventilation which caused an appreciable acceleration in the rate of disappearance of the germs from the air was an exchange of from 6 to 7 times an hour of the whole volume of air in the room.

(*d*). The rapid and complete removal of the germs from the air of a room can be accomplished only by the employment of very strong draughts.

(*e*). No degree of ventilation, however high, was sufficient to cause germs to rise from carpets, furniture, clothing, etc., into the air.

(*f*). Saturation of the air with aqueous vapor is not to be relied upon as a means of depriving the atmosphere of the germs suspended in it. It does however, to a limited extent, accelerate their disappearance.

In consideration of these conclusions Stern feels justified in recommending as a means of disinfecting rooms which have been occupied by persons suffering from infectious diseases, that as soon as the patient has been removed, the room be closed and allowed to remain so for at least 24 hours, after which it is to be quietly entered and floors, wall surfaces and furniture mopped with cloths saturated in corrosive sublimate 1:1000. Under no consideration is dusting to be countenanced.

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REGULATIONS AS TO ADMISSION, ETC.

The Johns Hopkins Hospital has made arrangements for giving two years' training to women desirous of learning the art of caring for the sick.

Those wishing to obtain the course of instruction must apply to the Superintendent of the Training School, upon whose approval they will be received into the school for one month, on probation. The acceptable age for candidates is from twenty-three to thirty-five years. The applicant should send with answers to the paper of questions, a letter from a clergyman, testifying to her good moral character, and from a physician, stating that she is in sound health. Applicants are received at any time during the year when there is a vacancy. During the month of trial and previous to being accepted as a pupil in the school, the applicant must be prepared for an examination in reading, penmanship, simple arithmetic, and English dictation. The examination is to test the applicant's ability to read aloud well, to write legibly and accurately, to keep simple accounts, and to take notes of lectures. This amount of education is *indispensable* for a member of the School, but applicants are reminded that women of superior education and cultivation will be preferred.

The Superintendent will decide as to their fitness for the work, and the propriety of retaining or dismissing them. She can, also, with the approval of the Board of Trustees, discharge a pupil at any time in case of misconduct or inefficiency. During the month of probation the pupils are boarded and lodged at the expense of the School, but receive no other compensation.

Those who prove satisfactory will be accepted as pupils, after signing the following agreement.

I, the undersigned, do hereby agree to remain two years from date a pupil of the above-named institution; and promise during that time to faithfully obey the rules of the school and hospital, and to be subordinate to the authorities governing the same.

They will reside in the Home and serve for the first year as assistants in the wards of the Hospital, the second year they will be expected to perform any duty assigned them by the Superintendent, either to be on service in the Hospital, or to be sent to private patients on application or to district nursing among the poor.

In addition to their board and lodging, the pupils will be allowed eight dollars a month for the first year, and for the second year twelve dollars. This is not given as pay for services rendered, as the teaching given and profession acquired are considered an ample equivalent, but is allowed for uniform, text-books, and other expenses incidental to their training.

They are required after the month of probation, when on duty, to wear the dress prescribed by the institution, which is of pale blue gingham, simply made, white apron and cap, and linen collar and cuffs.

The day nurses are on duty from 7.30 a. m. to 7.30 p. m. with an hour off for dinner, and additional time for study, exercise, or rest. Unless in an emergency they are also given an afternoon during the week, and half of Sunday, and a vacation of two weeks is allowed each year. Pupils are not placed on night-duty until they have been in the school three months.

As the institution is unsectarian there are no religious services connected with it except evening prayers, and all pupils are expected to attend the places of worship they prefer once on Sunday:

In sickness all pupils will be cared for gratuitously, but time so lost must be made up.

The course of instruction will be given by visiting and resident physicians and surgeons at the bedside of the patients, and by the Superintendent and Head-nurses. A regular course of lectures, recitations, and demonstrations will be given, and examinations at stated periods.

When the full term of two years is ended, the nurses thus trained will be at liberty to choose their own field of labor, whether in hospitals, in private families, or in district nursing among the poor. On leaving the school, they will, on passing an examination, each receive a diploma, and will be expected for the next few years to make an annual report to the Superintendent.

The Hospital Journal Club, meets on Thursday of each week, in the Library of the Hospital, at 4.30 p. m.

THE GYNAECOLOGICAL DEPARTMENT.

The Gynaecological Department of the Johns Hopkins Hospital has opened its private and common wards with an unusual amount of important work. Thirty-three operations were performed from Oct. 7 to Nov. 6, twenty-two of which were cases of abdominal surgery. Two of these were for fibroid tumors, one an ovariotomy for large cystic tumor, with general tubercular peritonitis, one an ovariotomy for large cystic tumor with broad pedicle and adhesions, one an oöphorectomy for menstrual neurosis of long standing, four were cases of hysterorrhaphy, one with removal of diseased appendages.

There were also three cases of pus accumulations in the ovaries and abscess of the pelvic wall.

SESSION OF THE AMERICAN PAEDIATRIC SOCIETY.

In compliance with an invitation extended by the Board of Trustees of the Johns Hopkins Hospital, the concluding session of the American Paediatric Society was held in Baltimore, at the Hospital, upon Saturday, September 21st. The members of the Society came from Washington upon an early train, and were received by several members who resided in Baltimore.

Among the members present at the meeting were: Drs. Francis Huber, New York; J. O'Dwyer, New York; Dillon Brown, New York; Charles Warrington Earle, Chicago; A. Caille, New York; J. Henry Fruitnight, New York; Arthur V. Meigs, Philadelphia; H. Koplik, New York; W. P. Northrup, New York; H. N. Vineberg, New York; Thomas S. Latimer, Baltimore; John A. Jeffries, Boston; A. Siebert, New York; W. D. Booker, Baltimore; A. Jacobi, New York; J. M. Keating, Philadelphia; L. Emmet Holt, New York; B. Solomon, Coblenz, Germany; Wm. Perry Watson, Jersey City; William H. Morrison, Philadelphia; W. L. Carr, New York. There were also present Messrs. Francis T. King, James Carey, Francis White, George W. Corner, and Geo. Wm. Brown, of the Board of Trustees of the Johns Hopkins Hospital, and the members of the Medical Staff; also Drs. L. McLane Tiffany, C. Johnston, F. Donaldson, and James Carey Thomas, of the Consulting Staff. Dr. A. Jacobi, of New York, the President of the Society, presided. Dr. William D. Booker, of Baltimore, acted as Secretary.

Dr. H. N. Vineberg, of New York, read a paper entitled "Some Practical Points on the Diagnosis and Treatment of Malaria in Children."

Dr. Thomas S. Latimer, of Baltimore, read a paper on "Spastic Paraplegia," and exhibited two cases. Dr. A. Seibert, of New York, on "Two Years of Experience in the Mechanical Treatment of Gastro-Intestinal Disorders in Infants."

Dr. W. D. Booker, of Baltimore, on "A study of the Bacteria found in the Dejecta of Infants affected with Summer Diarrhoea," and Dr. A. Jacobi, of New York, on "Aneurism in early life." These papers were followed by a general discussion. Dr. H. M. Thomas presented, in place of Dr. Osler, who was prevented from being present by a sudden illness, "A case of simple Muscular Atrophy of the facio-scapular-humeral type." Several other papers were also read by title.

The thanks of the Society were voted to the retiring President, to the Board of Trustees of the Hospital, and to the Committee of Arrangements. Dr. Jacobi said he was exceedingly well pleased with the meetings of the Society. The papers had all been ably discussed. He was thankful for the kindness with which had been received from the Board of Trustees, and the opportunity given them to have a meeting at the Hospital and to go through the buildings. The meeting adjourned at 1.30 p. m., subject to the call of the council. The members and invited guests were then entertained at lunch, and afterwards made a tour of inspection of the Hospital.

The Hospital Medical Society, meets on the first and third Mondays of each month, in the Library of the Hospital, at 8 p. m. W. H. WELCH, *President*; H. ROBB, *Secretary*.

Publications of the Johns Hopkins Hospital.

I.—HOSPITAL PLANS.

Five essays relating to the construction, organization and management of Hospitals contributed by their authors for the use of the Johns Hopkins Hospital of Baltimore. These essays were written by Drs. JOHN S. BILLINGS of the U. S. Army, NORTON FOLSOM of Boston, JOSEPH JONES of New Orleans, CASPAR MORRIS of Philadelphia and STEPHEN SMITH of New York. They were originally published in 1875. One volume, bound in cloth, price $5.00.

II.—DESCRIPTION OF THE JOHNS HOPKINS HOSPITAL.

In preparation to be issued at an early day, a description of the Johns Hopkins Hospital, by JOHN S. BILLINGS, M. D., LL. D., Medical Adviser to the President and Building Committee of Board of Trustees. This volume will contain about 40 plates with plans and detail drawings of all the Hospital Buildings; also photographic views of the exterior of the buildings. It will contain a careful and detailed description of the methods of heating and ventilating, plumbing and water-supply; also of the arrangements of the wards and service buildings and the mode of construction of the Hospital.

III.—THE JOHNS HOPKINS HOSPITAL REPORTS.

Volume I, for 1889. (In preparation). This volume will contain the Studies from the Pathological Laboratory.

There will appear articles on the following subjects: Hemorrhagic Infarction, Repair of Intestinal Suture, Reversal of the Intestine, Extirpation of the Thyroid Gland in Dogs, The Effects of Artificial Heat upon Animals, Hog Cholera, Behavior of Bacteria in Water, Bulbar Paralysis, Cerebellar Sclerosis.

The volume will be provided with illustrations.

It will be edited by Dr. W. H. WELCH, Professor of Pathology and Pathologist to the Hospital.

Volume II, for 1890. Beginning with January, 1890, the publication of the second volume of the Hospital Reports will be initiated by the publication of a fasciculus of about 64 pages. During the year, ten similar fasciculi will be issued, constituting in all a volume of about 500 pages. These fasciculi will contain medical, surgical and gynaecological papers and reports, details of cases, the technique of operations, etc. Subscriptions will be received for single fasciculi at the rate of 50 cents per fasciculus or for the entire volume at $5 per year. In addition to surgical and gynaecological monographs, a portion of the contents of the second volume will be as follows: On Hepatic Fever, Peritoneal Tumors of Tubercular Origin, Report of a case of Reynaud's Disease, Tubercular Pericarditis, Renal Complications of Typhoid Fever, Post-febrile Insanity, Acute Tuberculosis in a Suckling, The Present Status of our Knowledge of Malaria.

IV.—THE JOHNS HOPKINS HOSPITAL BULLETIN.

The Trustees of the Johns Hopkins Hospital have authorized the issue of a monthly publication to be known as the Hospital Bulletin. It will contain announcements of courses of lectures, programmes of clinical and pathological study, details of hospital and dispensary practice, abstracts of papers read and other proceedings of the Medical Society of the Hospital, reports of lectures and all other matters of general interest in connection with the work of the Hospital. Nine numbers will be issued annually. The first number appears in December, 1889. The subscription price will be one dollar per year.

A pamphlet containing the addresses of FRANCIS T. KING, President of the Hospital, DANIEL C. GILMAN, President of the University, and JOHN S. BILLINGS, Medical Adviser to the Hospital Trustees, at the opening of the Hospital, May 7, 1889, may be obtained on application.

Subscriptions for the above publications may be sent to the

PUBLICATION AGENCY OF THE JOHNS HOPKINS UNIVERSITY,
BALTIMORE, MARYLAND.

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The Johns Hopkins Hospital Bulletins are printed by Messrs. JOHN MURPHY & CO., Baltimore, from whom single Copies may be obtained; they may also be procured from Messrs. CUSHING & CO. and the BALTIMORE NEWS COMPANY. Subscriptions, $1.00 a year, may be addressed to the PUBLICATION AGENCY OF THE JOHNS HOPKINS UNIVERSITY, BALTIMORE; *single copies will be sent by mail for fifteen cents each.*